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CONTRIBUTIONS TOWARD
A FLORA OF NEVADA. NO. 21.

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SAURURACEAE OF NEVADA

by

O. M. FREEMAN

December 6, 1940

Issued by

The Division of Plant Exploration and Introduction,
Bureau of Plant Industry,
U. S. Department of Agriculture,
Washington, D. C.

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Work Projects Administration of Nevada,
Projects, O. P. 65-2-04-13, W. P. 658;
O. P. 165-2-04-21, W. P. 752.

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Collaborator

University of Nevada

Address all queries concerning this publication to the Division
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SAURURACEAE OF NEVADA

By O. M. Freeman

Our single species, a perennial stoloniferous herb. Scape-like stem bearing leaves at a point above the middle. The bracteate perfect flowers borne in a dense terminal spike; stamens 5 to 8, perianth none. Ovary 1-celled, with 3 parietal placentae. Fruit a capsule, dehiscent at the apex.

1. ANEMOPSIS Hook. Yerba mansa.

Rootstock aromatic and astringent. The leaves mostly radical and long petiolate. Flowers in a conic-cylindrical spike, subtended by a 5- to 8-bracted white involucre. Each flower of the spike is also subtended by a single white small bract. Ovary depressed in the body of the spike; styles usually 3.

1. ANEMOPSIS CALIFORNICA (Nutt.) Hook. & Arn. Bot. Beechey Voy.
390. pl. 92. 1841.

Anemia californica Nutt. Ann. Nat. Hist. 1: 136. 1838.

Stems 2 to 6 dm. high, bearing a broad ovate bract-like clasping leaf above the middle of the stem and 1 to 3 small petiolate leaves are borne in the axil. Radical leaves elliptic-oblong, obtuse at apex, and more or less cordate at

THEORY

The theory of the present experiment is based on the fact that the rate of change of the concentration of a substance in a solution is proportional to the concentration of the substance. This is expressed by the following equation:

$$\frac{dC}{dt} = -kC$$

where C is the concentration of the substance, t is time, and k is the rate constant. The solution of this equation is:

$$C = C_0 e^{-kt}$$

where C_0 is the initial concentration of the substance. The rate constant k can be determined by plotting $\ln C$ against t , which gives a straight line with a slope of $-k$.

The rate constant k is a measure of the speed of the reaction. It is affected by several factors, including temperature, concentration, and the presence of a catalyst. The Arrhenius equation relates the rate constant to the activation energy of the reaction:

$$\ln k = \ln A - \frac{E_a}{RT}$$

where A is the pre-exponential factor, E_a is the activation energy, R is the gas constant, and T is the absolute temperature. The activation energy is the minimum energy required for a reaction to occur. It can be determined by plotting $\ln k$ against $1/T$, which gives a straight line with a slope of $-E_a/R$.

The present experiment is designed to determine the rate constant k for the reaction between a certain substance and a certain reagent. The reaction is carried out in a solution, and the concentration of the substance is measured at various times.

The results of the experiment are shown in the following table. The concentration of the substance is measured in moles per liter, and the time is measured in minutes. The rate constant k is calculated from the slope of the line in the plot of $\ln C$ against t .

Time (min)	Concentration (mol/L)
0	0.100
10	0.080
20	0.064
30	0.051
40	0.041
50	0.033

base; blades 5 to 20 cm. long with petioles 3 to 20 cm. long. Involucral bracts oblong, 12 to 30 mm. long and the obovate floral bracts 4 to 6 mm. long.

Wet soil in low ground and near springs. Southern Nevada (Clark and Lincoln Counties) to Texas and southern California. Also in Mexico.

